Electronic Pressure Switch in ATEX Version

EDS 4400 Programmable

Description:

The programmable electronic pressure switch EDS 4400 in ATEX version, has been specially developed for use in potentially explosive atmospheres, and is based on the EDS 4000 series.

The switching point and switch-back point, the function of the switching outputs as N/C or N/O and the switching delay are user-programmable with the HYDAC Programming Unit HPG 3000.

As with the industry model, the programmable EDS 4400 in ATEX version has a stainless steel measurement cell with thin-film strain gauge for measuring relative pressure in the high pressure range.

With approval for the following
Protection types and zones:

I M1	Ex ia I
II 1G	Ex ia IIC T4, T5, T6
II 1/2G	Ex ia IIC T4, T5, T6
II 2G	Ex ia IIC T4, T5, T6
II 1 D	Ex iaD 20 T100°C

almost all requirements are covered regarding ignition group, error class and temperature class.

Versions for other protection types and zones are available on request.

Special features:

- Switching point and switch-back point user-programmable
- Accuracy ≤ ± 1 % FS
- Certificates:
  DEKRA EXAM BVS 07 ATEX E 041 X
- Very small temperature error
- Excellent EMC characteristics
- Excellent long-term characteristics

Technical specifications:

Input data		
Measuring ranges	60; 100; 250; 400; 600 bar	
Overload pressures	120; 200; 500; 800; 1000 bar	
Burst pressure	300; 500; 1000; 2000; 2000 bar	
Mechanical connection	G1/4 A DIN 3852	
Torque value	20 Nm	
Parts in contact with medium	Sensor: 1.4542 Mech. connection: 316L; 1.4435; 1.4571; 1.4404 Seal: FPM	
Output data		
Switch output	1 x PNP N/C or N/O	
Output load	during operation: I_{max} ≤ 34 mA	
Switching points	user-programmable with HYDAC Programming Unit HPG 3000	
Accuracy to DIN 16086, Max. setting	≤ ± 0.5 % FS typ. ≤ ± 1 % FS max.	
Repeatability (at 25 °C)	≤ ± 0.1 % FS max.	
Temperature drift	≤ ± 0.03 % FS / °C max. zero point ≤ ± 0.03 % FS / °C max. range	
Response and reset delay:	8 ms to 2000 ms; user-programmable with HYDAC Programming Unit HPG 3000	
Long-term drift	≤ ± 0.1 % FS typ. / year	
Ambient conditions		
Storage temperature range	-40 .. +100 °C	
Fluid temperature range	-20 .. +60 °C / +70 °C / +85 °C	
CE mark	EN 61000-6-1 / 2 / 3 / 4 EN 60079-0 / 11 / 26 IEC 61241-11	
Vibration resistance to DIN EN 60068-2-6 at 10 .. 500 Hz	≤ 20 g	
Protection class to DIN 40050	IP 67 (M12x1, when an IP 67 connector is used)	
Relevant data for Ex applications		
	I M1 II 1G, 1/2G, 2G	**II 1 D**
Supply voltage	14 .. 28 V DC	
Compensated temperature range	T6: -20 .. +60 °C T5, T4: -20 .. +70 °C T100: -20 .. +85 °C	
Operating temperature range	T6: -20 .. +60 °C T5, T4: -20 .. +70 °C T100: -20 .. +85 °C	
Max. ambient temperature T_a	T6: +60 °C T5, T4: +70 °C	T100: +85 °C
Max. input current	100 mA	93 mA
Max. input power	0.7 W	0.65 W
Max. internal capacitance	33 nF	33 nF
Max. internal inductance	0 mH	0 mH
Housing isolation voltage	125 V AC (500 V AC on request)	
Approved safety barriers	Pepperl & Fuchs: Z 787 Telematic Ex STOCK: MTL 7087	
Other data		
Residual ripple of supply voltage	≤ 5 %	
Life expectancy	> 10 million cycles 0 .. 100 % FS	
Weight	approx. 150 g	

Note: Reverse polarity protection of the supply voltage, excess voltage, override, short circuit protection are provided.
FS (Full Scale) = relative to the complete measuring range

Setting options:

In conjunction with the HYDAC Programming Unit HPG 3000, all the settings are combined in an easy-to-follow menu.

Setting ranges for the switch outputs:

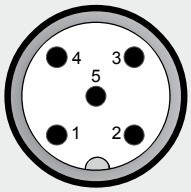
Measuring range in bar	Increment in bar
0 .. 60	0.1
0 .. 100	0.2
0 .. 250	0.5
0 .. 400	1
0 .. 600	1

	Minimum value in ms	Maximum value in ms
Switch-on delay Ton1/Ton2	8	2040
Switch-off-delay ToF1/ToF2	8	2040

The increment for all units is 8 ms.

Pin connections:

M12x1, 5 pole



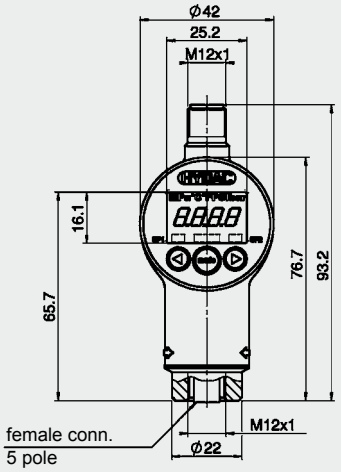
Pin	Process connection	HPG connection
1	$+U_B$	$+U_B$
2	0 V	Comport 1 *
3	0 V	0 V
4	Out 1	n.c.
5	0 V	Comport 2 *

* Comport = programming connection

Programming Unit:

(must be ordered separately)

HPG 3000 – 000
Portable Programming Unit



Areas of application:

Code Type code	1	2	3	8
Protection type	I M1 Ex ia I	II 1G Ex ia IIC T4, T5, T6	II 2G Ex ia IIC II 1/2G Ex ia IIC T4, T5, T6	II 1D Ex iaD 20 T100 °C
Certificate	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X	DEKRA EXAM BVS 07 ATEX E 041 X
Zones/ Categories	Group I Category M1 Mining Protection type: intrinsically safe ia with barrier	Group II Category 1G Gases Protection type: intrinsically safe ia with barrier Use in Zone 0 T4, T5: T_a = 70 °C T6: T_a = 60 °C	Group II Category 2G, 1/2G Gases Protection type: intrinsically safe ia with barrier Use in Zone 1, 2 Retrofit in Zone 0 T4, T5: T_a = 70 °C T6: T_a = 60 °C	Group II Category iD Dusts Protection type: intrinsically safe ia with barrier Use in Zone 20, 21, 22 Retrofit in Zone 20 T100: T_a = 85 °C
Electrical connection	8	8	8	8

Units for other protection types and zones are available on request.
Please contact our technical sales department.

Model code:

EDS 4 4 4 8 – XXXX – P – A N X 000

Mechanical connection
4 = G1/4 A DIN 3852 (male)

Electrical connection
8 = M12x1, 5 pole (connector not supplied)

Pressure ranges in bar
0060; 0100; 0250; 0400; 0600

Switching output
P = Programmable

Approval
A = ATEX

Isolation voltage *
N = 125 V AC (housing)

Protection types and zones (code) **
1 = I M1 Ex ia I
2 = II 1G Ex ia IIC T4, T5, T6
3 = II 2G Ex ia IIC T4, T5, T6 / II 1/2G Ex ia IIC T4, T5, T6
8 = II 1D Ex iaD 20 T100°C

Modification number ***
000 = Standard

Notes:

* Units with a housing isolation voltage of 500 V AC are available on request.
** Units for other protection types and zones are available on request.
*** On units with a different modification number, please read the label or the technical amendment details supplied with the unit.

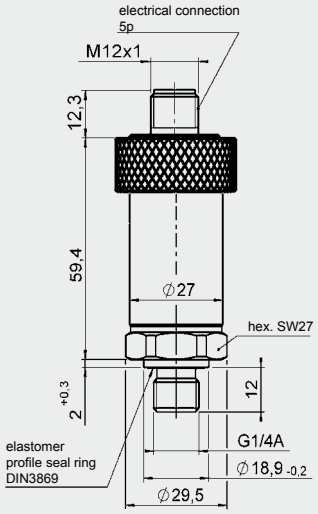
Accessories:

Appropriate accessories, such as electrical connectors, can be found in the Accessories section.

Safety information:

- These units must only be programmed outside the potentially explosive location.
- When operating in potentially explosive locations, the programming cables must be connected to 0 V outside the potentially explosive area.
- For technical reasons relating to explosive areas the switching output is defined as an input, in order to treat the field wiring as one electric circuit. This eases the design of the field cabling.
- The specified and approved dual Zener barriers, in which the signal path is decoupled using a reverse polarity diode, must be used for the connection. The signal path may only be passively loaded.
- Ensure that measurement fluids are compatible with the materials used in the pressure switch.

Dimensions:



Note:

The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

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